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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,878	06/20/2001	Anand G. Dabak	T131293	4511

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EXAMINER	
MEEK, JACOB M	

ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/885,878	DABAK ET AL.	
	Examiner	Art Unit	
	Jacob Meek	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 14, 60 - 88* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1 - 14* is/are allowed.

6)☒ Claim(s) *60 - 70, 75, 77 - 86, 88* is/are rejected.

7)☒ Claim(s) *71 - 74, 76, 87* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7/8/05 with regard to claims 60 –70, 75, and 77 – 86, and 88 have been fully considered but they are not persuasive.

With regard to applicant's argument regarding different groups of signals. Careful review of applicant's argument and interview notes, leads examiner to conclude that Whinnett is indeed an applicable reference. Whinnett shows S_1S_2 (figure 3) as being input to a terminal of space time coder (figure 3, 60). Whinnett's invention is specified for use in a CDMA system (see column 1, lines 20 – 24). CDMA modulation technique utilizes QPSK symbols (S_1S_2), which are represented by 2 bits per symbol, where a bit is a digital signal. Therefore, Whinnett does indeed teach different groups of signals being input to his system by virtue of the fact that S_1 consists of 2 digital signals, and S_2 consists of two digital signals, which meets the requirement of being different groups of symbols. Continuing this line of thought, any symbol disclosed by Whinnett would have the property of consisting of different groups of signals as claimed by applicant and is therefore proper.

With regard to applicant's argument regarding Whinnet's lack of plurality of encoding circuits and respective modulating codes. 1st, Whinnet discloses an encoder (see figure 3, 60) which outputs 2 transformed data streams (see figure 6, 302) and is interpreted as providing support for a plurality of encoders. With regard to modulating codes, Whinnet discloses use of modulating codes (see figure 3, 62, 64) on outputs of encoder circuits, and that respective codes are applied (see column 3, lines 11 – 15). Whinnet further discloses that differing codes may be applied to encoder outputs (see column 5, lines 36 – 49).

2. Restatement of previous rejections.

Claim 60 – 69, 75, 77 – 86, and 88 are rejected under 35 U.S.C. 102(e) as being anticipated by Whinnett et al (US-6,317,411).

With regard to claim 60, Whinnett discloses a circuit compromising: an input terminal coupled to receive a 1st and 2nd group of signals (see figure 3, 60 S_1S_2 and column 2, line 61 – column 3, line 4 where this is interpreted as equivalent), a 1st output terminal coupled to receive 1st group of symbols during a 1st time (see figure 60, S_1S_2 and column 3, lines 5 – 7), and; a 2nd output terminal coupled to receive a 3rd group of signals having a sequence during the 1st time, the 3rd group of signals compromising a transform of the 2nd group of signals, wherein the 3rd group of signals is different from the 2nd group of signals (see figure 60, $-S^*_2$ S^*_1 and column 3, lines 7 – 10).

With regard to claim 61, Whinnett discloses a circuit wherein each signal of each group of signals comprises a symbol (see column 2, lines 61 – 65 where this is interpreted as equivalent).

With regard to claim 62, Whinnett discloses a circuit wherein each symbol is a QPSK keyed symbol (see column 1, lines 17 – 26 and 40 –47, where QPSK modulation is the standard for CDMA communications).

With regard to claim 63 and 64, Whinnett discloses a circuit wherein the transform of the 2nd group comprises conjugation, negation, and reversal of order in time (see column 3, lines 7 – 10).

With regard to claim 65, Whinnett discloses a circuit wherein the 1st output terminal coupled to receive the 2nd group of symbols during a 2nd time (see figure 60, S_1S_2 and column 3, lines 5 – 7), and wherein 2nd output terminal coupled to receive a 4th group of signals having a sequence during the 2nd time, the 3rd group of signals compromising a transform of

the 2nd group of signals, wherein the 4th group of signals comprising a transform of the 1st group of signals (see figure 60, $-S^*_2$ S^*_1 and column 3, lines 7 – 10).

With regard to claim 66 and 67, Whinnett discloses a circuit wherein the transform of the 1st group comprises conjugation, negation, and reversal of order in time (see column 3, lines 7 – 10).

With regard to claim 68, Whinnett discloses a circuit comprising symbol mapper circuit having an input terminal coupled to receive 1st sequence of data bits, the symbol mapper circuit producing the 1st and 2nd groups of signals (see figure 3, 20 and column 2, lines 61 – 66).

With regard to claim 69, Whinnett discloses a CDMA system, which utilizes QPSK modulation, whose symbols are comprised of 2 data bits.

With regard to claim 75, Whinnett discloses a circuit wherein 1st and 2nd group of signals are encoded by a Walsh code (see figure 3, 62, W_1)

With regard to claim 77, Whinnett teaches a circuit wherein the output terminals are arranged for connection to antennas (see figure 3, 30, 32, 34, 36).

With regard to claims 78 – 84, the steps claimed as method are nothing more than a restatement of the function of the apparatus of claims 60 – 67, and therefore would have been obvious to one of ordinary skill in the art at the time of invention considering the aforementioned rejection of claims 60 - 67.

With regard to claim 85, Whinnett teaches a method comprising the steps of adding each 1st group of respective plurality of signals at 1st output terminal producing a 1st output signal (see figure 3, 62), and adding each 2nd transformed group of signals at 2nd output terminal thereby producing a 2nd output signal (see figure 3, 64).

With regard to claims 86 and 88, the steps claimed as method are nothing more than a restatement of the function of the apparatus of claims 75 and 77, and therefore would have been obvious to one of ordinary skill in the art at the time of invention.

Claims 70, 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whinnett et al (US-6,317,411).

With regard to claim 70, Whinnett teaches a circuit comprising an interleaver circuit having an input terminal coupled to receive sequence of data bits (see figure 3, 20 and column 2, lines 61 – 66). Whinnett is silent with respect to the operation of his interleaver. Interleaving techniques of data are well known in the art and the method chosen for interleaving would be a design choice for one of ordinary skill in the art.

With regard to claim 76, Whinnett teaches a circuit wherein the code applied to 2nd group of signal is orthogonal is orthogonal to code applied to 1st group of signals. With is silent with respect to the time reversal of codes. It would have been obvious to one of ordinary skill in the art at the time of invention that time reversal of codes would be a form of orthogonality.

Allowable Subject Matter

3. Claims 1 – 14 are allowed.

4. Claim 71 – 74, 76 and 87 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Cited Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lundby et al (US-6,356,528) discloses a diversity transmitter with many aspects of applicant's claimed invention.

Rashid-Farrkhi et al (US-6,400,780) discloses a diversity transmitter with some aspects of applicant's claimed invention.

Akiba et al (US-6,721,300) discloses a STTD encoding and diversity transmitter with many aspects of applicant's invention.

NPL referenced are furnished to show a general state of knowledge regarding STTD techniques known in the wireless community.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM
9/30/05

TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER